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Enabling Group-Based Learning in Teacher Education: A Case Study of Student Experience

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Abstract: "Teacher education ill prepares pre-service teachers for the classroom." Research conducted in a teacher education program at Edith Cowan University (ECU) responded to this criticism. This longitudinal case study selected group work (i.e., group-based learning) to investigate the quality of its teacher education program. Phase one explored teacher educators' perceptions of group-based learning. Phase two explored pre-service teachers' perceptions and experience of group-based learning. This phase used student 'voice' (i.e., through focus groups, confirmed field notes, summary sheets) to convey their ideas and experiences when studying in a group and/or implementing group-based learning in the classroom. This paper discusses phase two findings which show the importance of consistency and coherence in understanding group-based learning principles and practices, and the broad 'conditions' and 'actions' that enable meaningful learning. The research has enabled ECU teacher educators to enhance the quality of the teacher education program.

Introduction

Teacher education, internationally and nationally, is constantly criticised for its failure to prepare pre-service teachers adequately for classroom work (Hughes, 2006; Scott & Baker, 2003). Schoenfeld (cited in Lobato, 2006, p. 432) asserts that a principal priority in international educational research is in the area of pre-service teachers' transfer of knowledge and skills from a university to a classroom setting. The *Top of the Class* report into teacher education in Australia called for research to determine the effectiveness and impact of teacher education (House of Representatives Standing Committee on Education and Vocational Training [HRSCEVT], 2007). Group work and group-based learning is a major component of this challenge.

Teacher education necessitates high quality group work activities. Education requires teachers who can work in collegial teams and competently apply group work principles and practices in the classroom. For the purpose of this paper, 'group work' is referred to as group-based learning (GBL). This positioning of GBL emphasises 'undergraduate learning through active discussion and debate that generates new ideas' (Gregory & Thorley, 1994).

Group-based learning is used extensively in child, youth and adult classrooms and tutorials. It is a learning and teaching strategy used to advance students' interpersonal, communication and team work skills. The generic abilities are emphasised in educational texts as social, learning and

vocational lifelong learning skills. GBL at university aims to enable student research, discussion, debate, synthesis, construction and application of knowledge. The graduate attribute 'ability to work in teams' is well documented in Australian university reports (Curtis & McKenzie, 2001, pp. 5-6). It encompasses learning occurring with, from and through other people. It facilitates student learning and develops their personal, interpersonal and social skills (Hughes, 2002; James, McInnis, & Devlin, 2002; Johnson & Johnson, 2004; Kriflik & Mullan, 2007).

In addition to the high value placed on GBL in universities and workplaces, there is international and national 'research evidence' that supports the use of GBL in our schools. Research affirms that it is one of the most successful and influential learning and teaching techniques. GBL is not only effective in advancing an individual's academic achievement, but also their critical thinking, social interactions, communicative behaviours, self-esteem and motivation (Ashman & Gillies, 1997; Gillies, Ashman, & Terwel [Eds.], 2008; Kutnik, Ota, & Berdondini, 2008).

The application of GBL pedagogy, however, can challenge school-teachers as they often lack the theoretical and practical knowledge of how to transfer their own learning of GBL principles, practices and resources to their classrooms (Kutnik et al, 2008; Scheeler, 2008). Consequently, we advocate that prior to advancing pre-service teachers' knowledge of GBL practices it is incumbent on teacher educators to investigate the reality (good and bad) of our pre-service teachers' GBL experiences. Korthagen and Kessels (1999) and Tigchelaar and Korthagen (2004) assert that ignoring pre-service teachers' educational perceptions can jeopardise the transfer of knowledge and practice to a school setting. The successful transfer of educational theory and practice is advanced by focusing on pre-service teachers' prior understanding and connecting student experiences to disciplinary content (Korthagen & Kessels; Tigchelaar & Korthagen; Darling-Hammond & Bransford; 2005). De Jong, Cullity, Sharp, Spiers and Wren's (2010) qualitative case study supports this approach. Specifically, de Jong et al., synthesised teacher educator and pre-service teacher perceptions of GBL proposing four principles of transfer for teacher educators to consider when implementing GBL.

Undergraduate experiences of GBL

Academic texts discuss ways to plan, structure, implement and monitor GBL activities (e.g., Biggs & Tang, 2007; Johnson & Johnson, 2004; Race & Pickford, 2007). An empirical understanding of pre-service teachers' experiences of GBL is largely limited to evaluative studies with a focus on: undergraduate perceptions of assessment tools including group task-based assignments, peer assessment, and problem based learning (PBL) scenarios (Crowe & Pemberton, 2002; Di & Lee, 2000; Hanrahan & Isaacs, 2001). These writings illuminate ideas for teacher educators to consider. Huber and García (1993), however, state that quantitative research sometimes ignores the qualitative, subjective, practical and everyday experiences of beginning and experienced teachers. Similarly, Cook-Sather (2002) questioned the assumption that educational researchers know more about learning and teaching than research subjects.

Korthagen and Kessels (1999) and Tigchelaar and Korthagen (2004) assert that ignoring pre-service teachers' educational perceptions can jeopardise the transfer of knowledge and practice to a school setting. The successful transfer of educational theory and practice is advanced by focusing on pre-service teachers' prior understanding and connecting student experiences to disciplinary content (Korthagen & Kessels; Tigchelaar & Korthagen; Darling-Hammond, & Bransford; 2005).

The studies discussed in this paper give a valuable platform from which to contemplate, plan and investigate GBL in teacher education programs. But do teacher educators know the reality of students' GBL experiences? We believe that it is important to obtain an in-depth and qualitative

understanding of pre-service teachers' engagement with and use of GBL if teacher educators are to know the 'actions' and 'conditions' that promote or challenge students' GBL work. This paper explores: *What are Edith Cowan University, Kindergarten through Primary pre-service teachers telling their teacher educators to be mindful of, and pay attention to, when academics aim to enable meaningful student learning through group-based learning tasks?*

This paper draws from de Jong et al's (2010) longitudinal case study which investigated the quality of GBL in the Kindergarten through Primary (K-7) pre-service teacher program at Edith Cowan University (ECU). The paper utilises the voice of the K-7 pre-service teachers to articulate 'actions' and 'conditions' that promote or challenge their GBL work. The pre-service teachers' narratives reveal qualitative and subjective perspectives of GBL and how their experiences enabled or challenged their learning. Their perspectives were analysed to construct an insider understanding of GBL as a learning strategy.

Four broad conditions of GBL that promote meaningful learning for the pre-service teachers were identified. These were conditions that enabled them to: 'advance their skills, capabilities and understanding'; 'develop social and learning networks and employability and interpersonal skills'; 'share knowledge and ideas with others'; and 'facilitate learning through collaboration'.

A Case of Pre-Service Teachers

First-year ($n=208$) and third-year ($n=91$) Kindergarten through Primary (K-7) pre-service teachers' participated in the study. The K-7 program implements social constructivist learning principles with an aim to develop graduate teachers' ability to: make professional decisions, build learning communities, teach effectively, promote learning in different contexts, and work with diverse groups of children.

The pre-service teachers' ($n=309$) beliefs, experiences, practices and transfer of GBL pedagogy (de Jong et al., 2010) were researched using an action research (Stringer, 2008), insider research (Sikes & Potts, 2008) and case study (Stake, 1995) approach. Action research was used as a systematic and cyclical method of investigating teaching practices, combining action and reflection which resulted in changes in teaching practices driven by the researcher/teacher (Cohen, Manion, & Morrison, 2011). The case study approach was used as it offers rich sources of data of "an instance in action" (Adelman, Kemmis, & Jenkins cited in Cohen et al, 2011 p. 289). The insider's view of teacher/researcher enabled the in-depth and accurate examination and analysis of the unique, and complex beliefs, experiences and practices of first- and third-year K-7 pre-service teachers because the teacher/researcher, as insider, had understandings of student and course nuances that would otherwise possibly be misinterpreted. The research provides an evidence-based and in-depth account of the research topic: K-7 pre-service teachers' perceptions and experiences of GBL. To alleviate any insider researcher bias, two non-K-7 research officers coded and analysed the data.

Surveying and Listening to Pre-Service Teacher Perspectives

Data collection occurred at three stages and involved the use of three data collection methods: a thirty item survey; focus group interviews, field notes and summary sheets; and action research observations, discussion and field notes. In total: two-hundred and eight first-year and ninety-nine third-year students participated in the study ($n=307$) with over 60 per cent of them aged 17 to 21 for both first- and third-year students.

Thirty-item survey: Prior to a K-7 lecture, first ($n=178$) and third ($n=99$) year K-7 pre-services teachers used individual keypads (i.e., clickers) to respond to a 30 item Personal Audience Response System (PARS) generated survey. Survey questions were based on Thurston's differential scales and sought information on the pre-service teachers':

- demographic background (questions 1 to 3);
- their school and workplace experiences of GBL (questions 4 to 9); and,
- beliefs, experiences, practices and transfer of GBL pedagogy (questions 10 to 25).

The survey presented participants with "known positions" that they hold or may hold (Judd, Smith, & Kidder, 1991, p. 158) about group-based learning. Using a Likert scale the survey probed pre-service teachers' beliefs about the use of GBL in the early childhood and primary classroom (questions 26 to 30). Survey data provided a raw and percentage count of the results. Demographic data were cross matched with responses to question 4 to 30. In addition, a narrative account of the survey data was made.

Focus groups: One-hour focus groups were conducted separately with both first- and third-year K-7 pre-service teachers ($n=67$ participants in total). Focus group participants were also asked to complete a summary sheet by responding to the statement: 'Comment on the 3 most important aspects for you about group-based learning'. Thirty-seven first-year and twenty-three third-year students returned completed summary sheets ($n=60$). A narrative account (i.e., member check) of field notes was emailed to respective participants so that they could confirm or change the narrative (Miles & Huberman, 1994).

Action research: Two K-7 academics conducted the action research (Stringer, 2008) phase of the study with their first and third-year students. The lecturers explicitly explained GBL pedagogy to the students, reflected with students on their theoretical and practice-based knowledge of GBL, and adapted their own lecture/tutorial practices to advance students' knowledge and transfer of GBL to the school classroom (Wren & Spiers, paper forthcoming). Field notes and student journals provided an account of the action research cycle. An NVivo thematic analysis of this data was used to inform interview data and survey results.

Data analysis: A coded and thematic analysis of field note and summary sheet data (Ezzy, 2002) was conducted using manual and electronic (NVivo) techniques. Data were organised using an overarching theme (Level 1); sub-theme (Level 2); and specific theme (Level 3) structure. Matrices and concepts maps showed links within and between the data groups.

The discussion of results refers to 'comments'; that is, the number of times a matter was electronically coded to a specific theme. These comments were drawn from summary sheet statements, focus group interviews and field notes and, as such, show an individual as well as a collective understanding of participant perceptions and experiences.

Student Voice: A Discussion of Findings

Pre-service teachers' perceptions and experiences of GBL are expressed as two 'broad actions': 1) Promoting the potential for group-based learning and 2) Confronting the challenges of group-based learning. Contained within these broad actions are eight conditions that either promoted or challenged K-7 pre-service teachers' GBL outcomes. The findings aim to generate thought between teacher educators as they plan and implement effective GBL activities and make this knowledge explicit to pre-service teachers. This work offers other academics insights that may be relevant to undergraduate GBL.

Promoting the Potential for Group-Based Learning

This action refers to ways that enabled the pre-service teachers to: advance their skills, capabilities and understanding; develop social and learning networks and employability and interpersonal skills; share knowledge and ideas with others; and facilitate learning through collaboration. The case study illuminated four broad conditions of GBL that promote meaningful learning for the pre-service teachers. In particular, conditions that enabled them to:

- advance their skills, capabilities and understanding;
- develop social and learning networks and employability and interpersonal skills;
- share knowledge and ideas with others; and
- facilitate learning through collaboration.

Advance Skills, Capabilities and Understandings

Group-based learning work enabled learning by advancing the pre-service teachers' professional and personal growth (33 comments). Many of the abilities overlap into their professional and social lives. For example, the participants emphasised the skills of: public speaking, presentation, research, communication and collaboration. A first-year student explained:

Group work is an important part in general as it supports your learning but also assists in building employability skills like collaboration and communication. Having a group who is supportive can also assist you in developing confidence and self-esteem which are important attributes for employment as teachers.

Pre-service teacher learning is also advanced when they develop interpersonal skills relevant to their study and teaching work (26 comments). This is especially the case when GBL challenges them to draw on and enhance their listening skills and personal behaviour. GBL taught a group of first-year students to be open-minded, approach tasks and *see things* differently. GBL helped another student to reflect on and obtain *new insights* about herself and subject material. GBL, she suggested: *allows students to do things they could not do if they were working individually*. Echoing these ideas a third-year student commented:

Group-based learning can help to develop interpersonal skills that will aid students throughout their lives. Learn to communicate with others in constructive ways to solve any problems. Respect others – listen to the ideas of others without making judgemental statements.

Undertaking different GBL roles assisted some students to question and share information and support each other's learning. A first-year student commented:

Because you don't always understand what you read in the text book, through communicating in groups you can build your understanding and share knowledge.

Findings show that GBL advanced the pre-service teachers' personal, professional and social attributes. It offers students an authentic means of interacting with others, increasing knowledge and understanding, and reflecting on their learning and behaviour. In light of these findings, GBL gives academics a potential feedback tool from which to monitor students' abilities and learning.

Facilitate Personal Capabilities through Social and Learning Networks

The strategy GBL facilitated pre-service teachers' personal capabilities by involving them in social and learning interactions (26 comments). First-year students, in particular, increased their confidence to meet, communicate and socialise with new people. One student commented: working with unfamiliar people *puts you out of your comfort zone [and] this is good* as it challenges one to develop personal and academic confidence. Also, a group context allows students to *try out ideas without feeling stupid*. Overwhelmingly, first- and third-year students valued collaborative learning opportunities. They drew the analogy of developing a sense of community as they worked together. A first-year student commented:

Being in a group forces you to meet and talk to people you wouldn't normally talk to. Meeting new people can make you gain more confidence and even become better at social interaction.

Increased personal capabilities were perceived as *vital* to developing the pre-service teachers' classroom and everyday communication skills, especially as teachers are required to *interact with strangers*. Echoing this comment, a first-year student wrote: *The ability to work with others is not only a great skill at university but is a great life skill and will help you in the future.*

Implied here is the importance of peer supported learning and social interactions to the pre-service teachers' increased personal and academic confidence. It is evident that GBL provided them with opportunities to enhance lifespan-related social and learning skills.

Encourage Sharing of Knowledge and Ideas

The opportunity to share knowledge and ideas is paramount to the students' engagement in learning (25 comments). GBL is a meaningful way for them to *break down* a topic, *construct knowledge* and *clarify thinking* in a safe learning environment. *Bouncing ideas off each other* improved student understanding of the material and gave them strategies to approach their work. A third-year student explained:

Bouncing ideas off each other. In group environments with people you are comfortable in expressing yourself you are given the opportunity to be creative with your ideas. Only when you trust the other person won't humiliate you, you will then start to build concepts.

Working in groups challenged the students socially and academically as they undertook new roles, worked with new people and re-examined a topic (26 comments). A group of first-year students spoke about *learning in a role* and how volunteer or GBL developed aspects of their own behaviour and learning. One student commented: *you are stretching the perception of yourself through group work*. GBL assisted the students to consider and act on different perspectives. Survey results reflect the ideas put forward by the students. The responses showed that over 95 per cent of them believed it is 'acceptable' to share contrary ideas with peers in GBL, with a minority believing it is 'unacceptable' (4% of first-years and 5% of third-years) to share contrary ideas.

Sharing knowledge and ideas is what the pre-service teachers valued and liked most about GBL activities. This finding emphasises the significance of students learning with and from each other in a safe and inclusive learning milieu. Due to these findings, a course coordinator within the project team designed tutorial activities, including:

- Icebreakers to facilitate relationship building.
- Study groups organised for reflection and review purposes.
- A variety of group selection practices.
- The rationale for group selection practices.
- Techniques for managing groups.
- Application of group selection practices to classroom teaching.

Collaboration for Learning

Pre-service teachers' knowledge of GBL principles and practices assisted them to advance their GBL processes and outcomes (20 comments). The key collaborative qualities of: 'working as a team'; 'organising meetings', 'open communication practices', 'respect of other's opinions', 'constructive criticism', and 'fair and equitable group behaviour and responsibilities' were stressed by them. Working collaboratively enabled them to learn in a relaxed and inclusive environment. A third-year student captures the ideas of others:

Students need to feel relaxed with their group so they can voice ideas, opinions and problems without feeling they are 'disturbing the peace' or feel that they will be yelled at. If they feel valued as an equal [author emphasis] group member they will work more as a team as opposed to a group of individuals.

The NVivo thematic analysis showed that GBL supports pre-service teachers learning in: discussing and sharing new knowledge and ideas (49 comments); advancing one's capabilities (27 comments); and collaborating with others (20 comments). This understanding matches previous findings and reveals the importance of effective GBL practices if students are to participate in meaningful learning. Mirroring these ideas, first-year (72%) and third-year (60%) survey responses showed that GBL 'supported' their learning. A little over one-fifth of first-year and one-quarter of third-year students were undecided about whether GBL supported or hindered their learning. The difference between first- and third-year responses warrants investigating.

Meaningful GBL enabled K-7 pre-service teachers to develop their academic, personal, social and professional selves. Collaborative GBL conditions helped them to participate actively and critically in GBL tasks and transfer this knowledge to the classroom. At the same time, they interacted at a social and learning level with peers. The collaborative learning environment is what they like, appreciate and value about GBL. The GBL environment provided them with academic and social opportunities not readily available in individual learning tasks.

Confronting the Challenges of Group-Based Learning

Creating a collaborative GBL environment elicited challenges for K-7 program students and academics. Findings revealed four main challenges in organising and sustaining a community of learners: 'roles, expectations of GBL'; 'group selection and structure'; 'equity and fairness'; and 'conflict resolution'. Many of these challenges led directly or indirectly to uncertainty about attaining a fair, equitable, accountable and meaningful GBL experience. This was especially when the task is assessed (Cullity, De Jong, Sharp, Spiers, Turner & Wren, 2008; de Jong et al., 2010). These challenges collectively represent *the elephant in the room* for students and staff. The project team believes that each challenge should be attended to prior to the start of a GBL activity.

Preparatory work is required if all group members are to understand and value the nature and outcomes of GBL.

Roles, Standards and Expectations: Singing from the Same Song Sheet

The pre-service teachers (65% of first-year and 29% of third-years) 'liked' learning in groups, particularly when roles are explicitly assigned and the purpose of each role is clearly articulated. A collective understanding assisted students to be task focused. Field notes show that designated roles reduced confusion held about individual responsibilities. When each member *pulled their weight* the group functioned in an effective and efficient manner. Conversely, the pre-service teachers disliked GBL when people had different goals and work ethics and when individuals were intolerant of other's ideas. A student explained:

Group members need to be clear on the main goal of the group and what needs to be done to reach that goal. All need to understand what their particular role is in relation to the group's goal.

Key factors that hinder GBL are the anxiety and frustration the pre-service teachers experienced when peers held differing ideas about roles, standards and expectations (8 comments) and when individual inequity of effort occurred (13 comments). These differences compromised their learning. In these circumstances tension sometimes arose between them and this negatively influenced learning outcomes. A first-year student wrote:

I don't like working in groups when we are being assessed as a group if not all members are contributing. This causes more stress to the individual and resentment towards other members of the group.

Preliminary discussion of: GBL roles, individual and group standards, work ethic, and individual and group expectations can alleviate much of the confusion and tension experienced when the pre-service teachers' practice and/or behaviour differed. For instance, in two of the K-7 units, tutors now make explicit the roles, standards and purpose of group processes. These processes are discussed and agreed to by the students before GBL is introduced. Factors that enable productive GBL are also discussed. These preparatory discussions lay the foundation for meaningful GBL to occur and, as discussed later in the paper, are important in reducing inequities due to differences of standards, expectations and effort amongst pre-service teachers.

Group Selection Process Can Challenge Learning

Group selection processes can affect pre-service teacher learning experiences and outcomes by either encouraging individuals to commit to a task or, conversely, by discouraging individuals and thereby disturbing their learning. Survey results ($n=307$) showed that pre-service teachers preferred randomly selected groups (36% first-years; 46% third-years) to groups chosen by:

- skills and abilities (30% first-years; 23% third-years);
- friendship (19% first-years; 16% third-years); and,
- similar interests (10% first-years; 10% third-years).

The use of a variety of group selection processes helped pre-service teachers to circumvent difficulties sometimes experienced in friendship or unconsidered ability groups (33 comments).

Random selection practices enabled the students to interact with new people, listen to, and learn from others. A student explained: *It is easier to be in a professional role and keep on task with people who are not your friends.* Random selection typically created mixed ability groups. This was not always popular with students who wanted to select members due to 'like interests' or 'accountability to group outcomes'. A student commented: *I like to aim for an HD [high distinction] so I prefer if the group also have a similar commitment to high achievement levels.*

Friendship-determined groups (where there is a collective commitment to achieving a task) enabled student learning. Some third-year students believed friendship groups guarantee them: commitment, reliability, accessibility, cohesion, productivity and commonality of purpose. Conversely, friendship groups can disturb learning when, for instance, friends distract, criticise or disagree with each other, or when they ask *a friend to do more work*. Other problems occur when a student is *the odd person out* of a social clique.

Age of group members (14 comments) also influenced learning outcomes. Some younger students said their opinions are sometimes devalued by older students. On the other hand, some mature-age students commented that they are expected to lead the group or know answers. Third-year students indicated that diverse age-based groups can cause a mismatch of understanding and values (e.g., study habits, group behaviour). Other third-years gained valuable insights from listening to both mature-age and younger students.

There is a loud call for academics to organise groups with consideration given to the individual friendships, abilities, age, and interests of the class. The students require teacher educators to help manage what can be an academically and socially delicate learning situation for them.

Equity and Fairness

One of the main inherent challenges to GBL is the perceived equitable and fair behaviour of group members, particularly where assessment is involved (Cullity et al., 2008; de Jong et al., 2010). The notion of equity and fairness was linked to: collective accountability (23 comments); fair marks distribution (31 comments); and work ethic, standards and expectations (15 comments). The pre-service teachers experienced this challenge when working in groups at school and university. They stressed the importance of accountability to others and commitment to the group when working on a joint assignment. A first-year student said:

Group work requires the same amount of contribution from each member of the group because if you slack off you will let the rest of your group down and they will not get the best mark possible.

'Commitment' and 'pulling your weight' were keywords used by the pre-service teachers. They believed that commitment to the group was one of the most important aspects of GBL. A third-year student commented: *Group members need to be able to show their commitment by communicating with the group and contributing to the group.*

Collective accountability: Meaningful GBL occurs for students when *all the members of the group are committed to wanting the same thing*. Difficulties were experienced when individuals feel forced to step up and lead the group in order to motivate reluctant participants. Third-year students who had undertaken a leadership role became *frustrated* by the inaction of others. Thus, the value of the GBL experience is dependent on the collective commitment of individual members and what each contributes to the task.

As previously discussed, different work ethic and/or standards can create a negative experience for group members. Student comments suggest that: *group work can be a negative experience if the people within do not have all the same goals or work ethic*. Students who want to attain a higher standard of work often undertook extra work for other members: *the pass member is basically getting a free pass to a HD*. Tension arose for individuals when peers held different work ethics and standards. A first-year student commented: *It was particularly problematic when the other group members did not want to aim for a HD but were happy with a pass*.

Pre-service teachers noted that unequal contribution to group discussions may be related to personal attributes such as shyness, lack of confidence and personal qualities, and that it is important for them, as teachers, to transfer this awareness to the classroom. Equally, they stressed the importance of personal commitment, contribution and effort.

Fair marks distribution: The issue of fair distribution of marks for individual output of effort dominated many of the first-year focus group discussions and was stressed by some third-year students (31 comments). They noted that other people in a group can *copy your work* and that the burden of doing other's *share of the work* is problematic. When group members shirk individual and collective responsibility for their share of the work this negatively affects the group morale and outcomes. Some students suggested that each coursework unit should have a *built in mechanism* whereby the coordinator and/or tutor can determine each individual's effort and allocate marks accordingly. In the words of a first- and a third-year student:

The most important aspect of a group work to me is the uncertainty of grading. The whole group receives the same mark; however, it is not evident who put in the most effort, who paid little interest etc.

Sometimes you get put in a group where no one does any work, and then you have to do it all and everyone in the group gets the same mark – just doesn't seem fair.

Survey results reflect field notes and summary sheet comments with 89 per cent of first-year and 81 per cent of third-year student responses showing: the group should receive an overall mark as well as an individual mark for effort. Survey responses also revealed that the lecturer/tutor and students should be involved in assessing GBL (64% of first-years & 69% of third-year students). These findings indicate the need for lectures/tutors to be involved in peer assessment (e.g., monitor individual student effort, provide marking rubrics). A first-year student noted:

Peer and individual assessment is great because when group members know they are being individually assessed, it puts pressure on them to contribute more and put in their best efforts. It also gives you credit for your hard work and contribution.

Pre-service teachers perceived peer assessment as good as it rewards students for their individual efforts: it is *a positive means of providing comments about who did what and you can give credit to those who contribute*. Peer assessment was one suggested way to overcome the issue of fair distribution of marks as it *helps a bit to avoid passive participants receiving equal reward for unequal effort*. First-year students stressed this point and argued for individual as well as group assessment. In some cases, there are problems when friends work together and in other circumstances when they work apart, thus illustrating the complex nature of interpersonal relationships to effective GBL processes and outcomes.

Clearly, equity of effort and fairness of outcome is necessary in creating a positive working relationship and environment for the pre-service teachers. This is not a private issue for students to address as their learning happens under our watch and their learning outcomes are assessed by us. It

is incumbent on teacher educators to foster, monitor and model equitable learning and teaching processes if K-7 pre-service teachers are to *know through experience* when organising GBL for children. A first-year student captures this idea:

Group work is essential for becoming an effective teacher, pre-service teachers must grasp this concept quickly and effectively in order to demonstrate group work whether it be placing children into groups or collaborating ideas with other teachers.

The issue of equity and fairness of assessment deeply concerns the students. Based on the findings, a K-7 coordinator has implemented the following strategies:

- Provide GBL guidelines and discuss these with students.
- Allocate group and individual marks.
- Give clear and descriptive rubrics for assessment.
- Co-construct assessment rubrics with students.
- Design self and peer assessment.
- Supply rubrics that guide the self and peer assessment process.

A K-7 unit coordinator organised students to journal their GBL experiences. The students reflected on their experiences in respect to GBL and teaching principles.

Coaching for Conflict Management and Resolution

Group work challenged students when they were exposed to interpersonal conflict (12 comments). Pre-service teachers were aware of the need for them to develop ‘people’ and ‘negotiation’ skills, including, as one first-year student wrote: *tact and diplomacy*. Interpersonal group relationships were challenged when one person inadvertently *took over* and the other group members lacked the conflict resolution skills to resolve the matter. The students found conflict resolution skills difficult to implement as they *don’t want to make enemies* of other group members, upset friends, or threaten their assignment mark when peer assessment is involved. A first-year student summarises these points:

Other issues arose around the frustration of broaching work ethic or personality issues with group members and needing to keep them on-side in case of offending, with the consequence of being marked down in a peer assessment.

Obtaining a consensus of ideas challenged the pre-service teachers when group members were hesitant to consider other’s ideas. This issue is particularly difficult when there are *two head strong* group members as this creates tension for the group. To avoid these types of conflicts, some first-year students said that they would prefer to self-select group members whom they know and can trust to complete a task.

Conflict resolution strategies that have assisted the pre-service teachers in diffusing tension include: acknowledging difference of personality and finding a way to work around individuals; speaking up before the situation escalates; listening to and respecting their peers’ opinion; and giving constructive feedback rather than criticism. Whilst the students are aware of and have implemented some conflict resolution strategies, clearly they require increased preparatory work if they are to defuse, negotiate and/or resolve conflict.

Conclusion and Considerations

The K-7 teacher education course provided a bounded case from which to examine and understand K-7 pre-service teachers' perceptions and experiences of group-based learning. The lived reality of their GBL experiences is described by them. Their voices were unequivocal in stating how the two broad actions and eight conditions of GBL either promoted or confronted their learning.

The students' perceptions of GBL have resonance for teacher educators when they design, plan, implement, monitor and assess GBL. It is through comprehending the subjective and practical GBL experiences of preparatory teachers that teacher educators can review and revise course curriculum, with the aim of enabling meaningful learning for pre-service teachers and the children they teach. A teacher education curriculum must remain an emerging and evolving resource if it is to be responsive and relevant to the needs of pre-service teachers, schools, parents and the communities teachers serve. The pre-service teachers, within this study, have helped to co-construct their learning and teaching.

It is apparent from the literature and the K-7 student experience of GBL pedagogy that leaving productive learning to chance is flawed. This work asserts that in designing and facilitating GBL experiences for pre-service teachers it is imperative that teacher educators make explicit and actively promote positive GBL outcomes. Equally, it is imperative that teacher educators vigorously confront the challenges of GBL. Particular attention should be given to creating and sustaining safe and equitable GBL experiences that produce meaningful and fair learning outcomes. This type of learning experience is likely to enhance the credibility of GBL as a meaningful learning strategy. It is also likely to advance the transfer of GBL knowledge and skills from university to the classroom: a key objective of teacher education programs.

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